

Degree constructions

Chris Potts, Ling 230b: Advanced semantics and pragmatics, Spring 2018

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1 Overview

This handout reviews the basics of degree constructions from Kennedy & McNally (2005:§3) (henceforth KM05), Kennedy (2007:§3) (K07), and Syrett et al. (2009) (SKL). For much more in a similar vein, see Morzycki 2015. The associated homework assignment asks you to explore some alternative approaches and compare them with this one.

2 Core claims

- (1)
 - a. d is the type of degrees.
 - b. D_d is the domain of degrees. We assume it to be totally ordered, i.e., a scale.
- (2) Gradable adjective meanings as measure function (type $\langle e, d \rangle$)
 - a. $\llbracket \text{tall} \rrbracket^{\mathbf{M}, g, c} = \lambda x_e (\text{the height of } x \text{ in context } c)$
 - b. $\llbracket \text{expensive} \rrbracket^{\mathbf{M}, g, c} = \lambda x_e (\text{the price of } x \text{ in context } c)$
- (3) Scale structures

relative	{	totally open	○————○	<i>tall, short, long, expensive, ...</i>
absolute	{	lower closed	●————○	<i>wet, impure, bent, visible, awake, ...</i>
		upper closed	○————●	<i>dry, pure, straight, flat, full, empty, ...</i>
		totally closed	●————●	<i>opaque, open, closed, invisible, ...</i>
- (4) Pos-morphemes
 - a. $\llbracket \text{pos}_{rel} \rrbracket^{\mathbf{M}, g, c} = \lambda m_{\langle e, d \rangle} \lambda x_e (m(x) \geq \mathbf{s}(m))$
“ \mathbf{s} is a context-sensitive function that chooses a standard of comparison in such a way as to ensure that the objects that the positive form is true of ‘stand out’ in the context of utterance, relative to the kind of measurement that the adjective encodes.” (K07:17)
 - b. $\llbracket \text{pos}_{max} \rrbracket^{\mathbf{M}, g, c} = \lambda m_{\langle e, d \rangle} \lambda x_e (m(x) = \max(m))$
 - c. $\llbracket \text{pos}_{min} \rrbracket^{\mathbf{M}, g, c} = \lambda m_{\langle e, d \rangle} \lambda x_e (m(x) > \min(m))$
- (5) Alternative denotations for adjectives
 - a. $\lambda m_{\langle e, d \rangle} \lambda k_{\langle e, t \rangle} \lambda x_e (m(x) > \mathbf{norm}(k)(m))$
 - b. $\lambda m_{\langle e, d \rangle} \lambda f_{\langle e, t \rangle} \lambda x_e \boxed{\text{defined iff } f(x) = \mathbf{T}} m(x)$

(6) Phrasal comparatives

- a. $\llbracket \mathbf{than}_{\text{phrasal}} \rrbracket^{\mathbf{M},g,c} = \lambda x_e x$
- b. $\llbracket \mathbf{more}_{\text{phrasal}} \rrbracket^{\mathbf{M},g,c} = \lambda m_{\langle e,d \rangle} \lambda y_e \lambda x_e (m(x) > m(y))$
- c. $\llbracket \mathbf{less}_{\text{phrasal}} \rrbracket^{\mathbf{M},g,c} = \lambda m_{\langle e,d \rangle} \lambda y_e \lambda x_e (m(x) < m(y))$

(7) Clausal comparatives

- a. $\llbracket \mathbf{than}_{\text{clausal}} \rrbracket^{\mathbf{M},g,c} = \lambda D_{\langle d,t \rangle} (\mathbf{max}(D))$
- b. $\llbracket \mathbf{more}_{\text{clausal}} \rrbracket^{\mathbf{M},g,c} = \lambda m_{\langle e,d \rangle} \lambda d_d \lambda x_e (m(x) > d)$
- c. $\llbracket \mathbf{less}_{\text{clausal}} \rrbracket^{\mathbf{M},g,c} = \lambda m_{\langle e,d \rangle} \lambda d_d \lambda x_e (m(x) < d)$

(8) Alternative denotations for phrasal comparatives

- a. $\llbracket \mathbf{more}_{\text{A-not-A}} \rrbracket^{\mathbf{M},g,c} = \lambda m_{\langle e,d \rangle} \lambda y_e \lambda x_e (\exists d m(x) \geq d \wedge \neg(m(y) \geq d))$
(Seuren 1973)
- b. $\llbracket \mathbf{more}_{\text{max}} \rrbracket^{\mathbf{M},g,c} = \lambda m_{\langle e,d \rangle} \lambda y_e \lambda x_e (\mathbf{max}\{d : m(x) \geq d\} > \mathbf{max}\{d : m(y) \geq d\})$
(von Stechow 1984; Heim 2001)

(9) *Interpretive economy*: “Maximize the contribution of the conventional meanings of the elements of a sentence to the computation of its truth conditions.” (K07:36)

3 Important examples

(10) Jesse is tall.

Ling 230b, Stanford (Potts)

(11) The glass is full.

(12) The table is wet.

(13) a. two-thirds closed

b. # two-thirds tall

(14) a. The Mars Pathfinder mission was expensive.

b. My watch was expensive.

c. Kyle's car is an expensive BMW, though it's not expensive for a BMW.

Ling 230b, Stanford (Potts)

(15) Everyone in my family is tall.

Ling 230b, Stanford (Potts)

(16) Jesse is taller than Sandy.

(17) Jesse is taller than Sandy is.

(18) a. Jesse is taller than every student (is).

b. Jesse is taller than some student (is).

4 The case for absolute adjectives

4.1 Adverbs for distinguishing scales (KM05:§3; K07:§4.2)

- (19) a. Maximality: *completely, fully, totally, absolutely, 100%, perfectly, ...*
 b. Proportion: *half, mostly, most of the way, two-thirds, three-sevenths, ...*
 c. Minimality: *slightly, somewhat, partially, ...*

(20)

Adverb	Totally open	Totally closed	Upper closed	Lower closed
Maximality	*	✓	✓	*
Proportion	*	✓	*	*
Minimality	*	✓	*	✓

The missing patterns in (20) are ruled out semantically. For example, proportion advs require upper and lower ends, so no adj could allow them but disallow maximality or minimality advs. Similarly, no adj could allow maximality and minimality advs without also allowing proportion advs.

Acquisition angle on the adverbs 30-month-olds “appear to be aware of such distributional differences and recruit them in word learning” (Syrett & Lidz 2010:258)

4.2 Context-dependence

Skeptics of this analysis of absolute adjectives often point to our contextually-determined intuitions about what counts as full, wet, etc., as evidence that all gradable modification is relative. Informally, I’d say this is the first and most resolute objection people have to the account. KM05 and K07 attempt to counter these objections using intuitions and theoretical considerations:

On the whole, it is fairly easy to come up with other ‘imprecise’ uses of absolute adjectives, calling into question our claim that these adjectives represent a semantic class distinct from relative gradable adjectives. While it is arguably true that in some cases imprecise uses reflect a semantic shift away from a ‘default’ absolute meaning toward a purely relative one (a point to which we return in §4.3), we nevertheless contend that there are both theoretical and empirical arguments for maintaining the claim that absolute adjectives are semantically distinct from relative adjectives. (KM05:357)

one interpretation of these facts is that these expressions also have context-dependent denotations, like relative GAs. On this view (advocated by, e.g. Lewis 1970, 1979; Kamp 1975; and Pinkal 1995), interpretive variability is always fundamentally semantic, and expressions like *full* and *straight* [...] have meanings that, like *big* and *long*, require fixing the value of some contextual parameter as part of determining their extensions. Another interpretation is that all of these expressions, including relative GAs, have fixed denotations, and the observed variability is a purely pragmatic phenomenon (Austin 1979; Travis 1994, 1996). (SKL:28)

Theoretical proposal Invoke Lasersohn's (1999) pragmatic halos, arguing that this is imprecision, not vagueness of the sort that we find with relative adjectives (KM05:357; K07:fn. 22, p. 25, and §3.2.1; SKL:28).

4.3 Entailments (KM05:§4.2; K07:§3.2.2)

(21) *Lower-closed*: $\neg adj(x)$ entails that x has 0 degree of adj , so $adj(x) \wedge \neg adj(x)$ should be contradictory:

The spot is not visible, but I can see a little bit of it. (KM05:359)

(22) *Upper-closed*: $adj(x)$ entails that x has the maximal degree of adj , so $adj(x) \wedge \Diamond(\text{more } adj(x))$ should be contradictory:

My glass is FULL, but it could be fuller. (K07:26)

(23) *Relative*: Neither entailment holds:

a. Sam is not tall, but his height is normal for his age.

b. That film is interesting, but it could be more interesting. (KM05:359)

Potential objection Skeptics of the absolute/relative distinction are likely to take issue with these judgments. KM05 point out that the upper-closed test is "difficult to test, since maximum-standard adjectives readily allow imprecise uses" (p. 359), which is part of what's at issue.

4.4 Imprecision and precisification (K07:§3.2.1)

(24) a. *We might judge this true (true enough) if the rod is, say, 995 cm:*

The rod is 10 meters long.

b. *However, we can precisify with such measure phrases:*

We need a 10 meter long rod for the antenna, but this one is 1 millimeter short of 10 meters, so unfortunately it won't work.

c. *Relative adjectives do not easily admit of such precisification:*

?? We need a long rod for the antenna, but since long means 'greater than 10 meters' and this one is 1 millimeter short of 10 meters, unfortunately it won't work.

d. *Absolute adjectives behave like precise measure phrases wrt exhaustification:*

The rod for the antenna needs to be straight, but this one has a 1 mm bend in the middle, so unfortunately it won't work.

Potential objection Even relative adjectives admit of precise uses, so it's not clear that we have a categorical distinction here.

4.5 Sorites paradox

(K07:§3.2.4)

Only relative adjectives give rise to it; we accept (25.P2), thereby triggering the paradoxical conclusion (25.P2), but we reject (26.P2), thereby blocking the paradoxical (26.P2)

- | | |
|---|--|
| (25) P1. A theater with 1000 seats is big.
P2. Any theater with 1 fewer seat than a big theater is big.
C. Therefore, any theater with 10 seats is big. | (26) P1. A theater in which every seat is occupied is full.
P2. Any theater with one fewer occupied seat than a full theater is full.
C. Therefore, any theater in which half of (none of, etc.) the seats are occupied is full. |
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Potential objection In imprecise contexts, we can probably get people to accept P2 even for maximal standard adjectives, which will generate the paradox.

References

- Heim, Irene. 2001. Degree operators and scope. In Caroline Féry & Wolfgang Sternefeld (eds.), *Audiatur vox sapientiae: A festschrift for Arnim von Stechow*, 214–239. Akademie Verlag.
- Kennedy, Christopher. 2007. Vagueness and grammar: The semantics of relative and absolute gradable adjective. *Linguistics and Philosophy* 30(1). 1–45.
- Kennedy, Christopher & Louise McNally. 2005. Scale structure and the semantic typology of gradable predicates. *Language* 81(2). 345–381.
- Lasnik, Howard. 1999. Pragmatic halos. *Language* 75(3). 522–551.
- Morzycki, Marcin. 2015. *Modification*. Cambridge University Press.
- Seuren, Pieter. 1973. The comparative. In Ferenc Kiefer & Nicolas Ruwet (eds.), *Generative grammar in Europe*, 528–564. Dordrecht: Reidel.
- von Stechow, Arnim. 1984. Comparing semantic theories of comparison. *Journal of Semantics* 3(1). 1–77.
- Syrett, Kristen, Christopher Kennedy & Jeffrey Lidz. 2009. Meaning and context in children's understanding of gradable adjectives. *Journal of Semantics* 27(1). 1–35.
- Syrett, Kristen & Jeffrey Lidz. 2010. 30-month-olds use the distribution and meaning of adverbs to interpret novel adjectives. *Language Learning and Development* 6(4). 258–282.